AMENDMENTS TO THE CLAIMS

The following claims replace all prior versions and listings of claims in the application:

Claims 1-8 (cancelled).

9 (currently amended).   An apparatus for allocating processing resources of a signal processor to signal processing functions, which are associated with inputted signals, comprising:

a capacity determining means for determining an amount of the processor resources available to be assigned to the signal processing functions;

a load determining means for determining an estimate of an amount of the processing resources needed for each of the signal processing functions waiting in a queue [[to]] to be executed;

an allocating means, which receives information from said capacity determining means and said load determining means, for allocating the available processing resources to signal processing functions waiting in the queue to be executed, based on a hierarchical ~~priortity~~ priority scheme, wherein

said load determining means calculates a product, for each of j instances, corresponding to each of said inputted signals, where j = 1 to m, and for each of k signal processing functions associated with each of said j instances, where k = 1 to N, obtained by:

(a)   estimating an amount of processing resource needed to support the execution of the jth instance of the kth signal processing function;

(b)   assigning a value of either zero or one to a multiplicand associated with the jth instance of the kth signal processing function; and

(c)   multiplying the estimated amount of processing resource

needed to support the execution of the jth instance of the kth signal processing function by its associated multiplicand and assigning the result to the product associated with the jth instance of the kth signal processing function; and

said load determining means calculates a sub-total sum, for each of the j instances, obtained by:

(d) summing together the products associated with each of the k signal processing functions associated with each of the j instances; and

(e) adding another estimated amount of the processing resource needed to support background processing associated with each of the j instances to the sum of products of each of the k signal processing functions associated with each of the j instances and assigning the result to the sub-total for each of the j instances.

10 (currently amended).   The apparatus of claim 9, wherein:

the multiplicand value associated with the jth instance of the kth signal processing function is determined according to a hierarchical priority scheme.

11 (currently amended).   The apparatus of claim 9, wherein:

said load determining means repeats the steps (a) through (e), recited in claim 9, for each of a number of sequential time periods; and

said allocating means reallocates the available processing resources to the signal processing functions in each of said time periods based on a hierarchical priority scheme.

12 (currently amended).   The apparatus of claim 11, wherein:

said load determining means establishes a variable length time period that is no longer than a period needed to execute any one of the j instances and its associated k signal processing functions that are executing concurrently.

13 (currently amended).   The apparatus of claim 11, further comprising:

for each of the j instances occurring over multiple time periods and its associated k^{th} signal processing function, said prioritization means assigns increasingly higher priority in accordance with an increasingly greater number of time periods that have passed since the last j^{th} instance of the kth signal processing function was last executed.